TABLE 62.35–50—MINIMUM SYSTEM MONITORING AND SAFETY CONTROL REQUIREMENTS FOR SPECIFIC SYSTEMS (NOTE 1)—Continued

System	Service	Instrumentation	Alarm	Safety control	Notes
Engines and turbines	Jacking/turning gear	Engaged			(8)
Fuel oil	(9)	(9)	(9).		
	Remote/auto fill level		High	Auto trip or overflow arrangement.	
	Hi. press. leakage level.		High.		
Bilge	Pump remote control	Run.			
	Pump auto control	Run	Excessive operations.		
	Level		High/location.		
Machinery space CL.3 W.T. doors.		Open/closed.			
Fire detection	Machinery spaces		Space on fire		(9)
Fire main		Pressure	Low.		
Personnel	Deadman		Fail to acknowledge		(10)
General, control and alarm systems.	Power supply	Available (pressure)	Failure (low).		
	System function		Failure		(11)
	Console air conditioning.		Failure.		
	Built in test equipment.	Active.			
	Sequential interlock	Activated.			
	Safety control		Activated	Auto trip/limit	(11)
Redundant auxiliary, system, power supply.		Status	Auto transfer.		

[1] See ABS Table 41.1.
[2] See ABS Table 41.1, except Shaft Rollover.
[3] See § 113.37 of this chapter.
[4] See subparts 111.33 and 111.35 of this chapter.
[5] See subparts 112.45 and 112.50 of this chapter.
[6] See § 111.12–1(c) of this chapter.
[7] See § 111.12–1 (b), (c) of this chapter.
[8] See § 58.10–15(g) of this chapter.
[9] See ABS Table 41.1, ''Additional Services.''

NOTES ON TABLE 62.35–50:

1. The monitoring and controls listed in this table are applicable if the system listed is provided or required. References to ABS Table 41.1 apply to the ''Operation,'' ''Display,'' ''Alarm,'' and ''Notes'' 1 through 12, except the reference to ACCU in Note 11.

2. Safety limit controls must be provided in navigating bridge primary propulsion control systems. See § 62.35–5(c).

3. Safety trip controls and alarms must be provided for all main boilers, regardless of mode of operation. See § 62.35–20(a).

4. Loss of forced lubrication safety trip controls must be provided, as applicable.

5. Override of overspeed and loss of forced lubrication pressure safety trip controls must not be provided. See § 62.35–5(e)(2).

6. Transfer interlocks must be provided.

7. Semiconductor controlled rectifiers must have current limit controls.

8. Interlocks must be provided. See § 62.25–5(a).

9. See subparts 113.10, 161.002, and fire protection requirements of the applicable subchapters. The use of thermal detectors alone is subject to special consideration by the Commandant (G-MSE). Flame detectors may only be used in conjunction with smoke or heat detectors.

10. See § 62.50–20(b)(1).

11. Alarms and controls must be failsafe. See § 62.30–1.

12. Vital auxiliary boilers only. Also see part 63.

[CGD 81–030, 53 FR 17838, May 18, 1988; 53 FR 19090, May 26, 1988, as amended by USCG–2000–7790, 65 FR 58461, Sept. 29, 2000]

Subpart 62.50—Automated Self-propelled Vessel Manning

§ 62.50–1 General.

(a) Where automated systems are provided to replace specific personnel in the control and observation of the engineering plant and spaces, or reduce overall crew requirements, the arrangements must make sure that under all sailing conditions, including maneuvering, the safety of the vessel is equal to that of the same vessel with the entire plant under fully attended direct manual supervision.

(b) Coast Guard acceptance of automated systems to replace specific personnel or to reduce overall crew requirements is predicated upon—

(1) The capabilities of the automated systems;

(2) The combination of the personnel, equipment, and systems necessary to ensure the safety of the vessel, personnel, and environment in all sailing conditions, including maneuvering;

(3) The ability of the crew to perform all operational evolutions, including emergencies such as fire or control or monitoring system failure;

(4) A planned maintenance program including routine maintenance, inspection, and testing to ensure the continued safe operation of the vessel; and

(5) The automated system's demonstrated reliability during an initial trial period, and its continuing reliability.

NOTE: The cognizant Officer in Charge, Marine Inspection, (OCMI) also determines the need for more or less equipment depending on the vessel characteristics, route, or trade.

(c) Equipment provided to replace specific personnel or to reduce overall crew requirements that proves unsafe or unreliable in the judgment of the cognizant Officer in Charge, Marine Inspection, must be immediately replaced or repaired or vessel manning will be modified to compensate for the equipment inadequacy.

§ 62.50–20 Additional requirements for minimally attended machinery plants.

NOTE: Minimally attended machinery plants include vessel machinery plants and spaces that are automated, but not to a degree where the plant could be left unattended. Emphasis is placed on the centralized remote control and monitoring of the machinery plant and machinery spaces.

(a) *General.* (1) Navigating bridge propulsion control must be provided.

(2) An ECC must be provided and must include the automatic and remote control and monitoring systems necessary to limit the operator's activity to monitoring the plant, initiating programed control system sequences, and taking appropriate action in an emergency.

(3) The ECC must include control and monitoring of all vital engineering systems, including—

(i) The propulsion plant and its auxiliaries;

(ii) Electrical power generation and distribution;

(iii) Machinery space fire detection, alarm, and extinguishing systems; and

(iv) Machinery space flooding safety systems, except the valves described in paragraph (e)(4) of this section.

(4) ECC control of vital systems must include the ability to place required standby systems, auxiliaries, and power sources in operation, unless automatic transfer is provided, and to shut down such equipment when necessary.

NOTE: ECC remote control need not include means for a single operator to bring the plant to standby from a cold plant or dead ship condition or controls for non-vital systems or equipment.

(b) *Alarms and instrumentation.* (1) A personnel alarm must be provided and must annunciate on the bridge if not routinely acknowledged at the ECC or in the machinery spaces.

(2) Continuous or demand instrumentation displays must be provided at the ECC to meet the system and equipment monitoring requirements of this part if the ECC is to be continuously attended. If the watchstander's normal activities include maintenance, a roving watch, or similar activities in the machinery spaces but not at the ECC, both alarms and instrumentation must be provided.

(3) All required audible alarms must annunciate throughout the ECC and machinery spaces.

(c) *Fire detection and alarms.* An approved automatic fire detection and alarm system must be provided to monitor all machinery spaces. The system must activate all alarms at the ECC, the navigating bridge, and throughout the machinery spaces and engineers' accommodations. The ECC and bridge alarms must visually indicate which machinery space is on fire, as applicable.

NOTE: For purposes of this part, the specific location of fires that are not in machinery spaces need not be indicated.